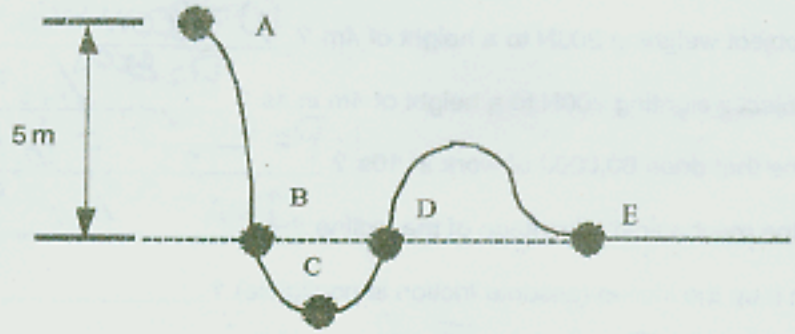
9. A big metal bead slides due to gravity along an upright friction free wire. It starts from rest at the top of the wire as shown in the sketch. How fast is it going as it passes point...B ? 9.8 D ? -9.8 E ? 9.8




10. A 600N block is lifted by the friction free pulley system shown.

a) How many strands of rope support the 600N block ? 6

b) How much force does each strand exert on the block ? 100N

c) How much force does the man exert on the end he is holding ? 100N

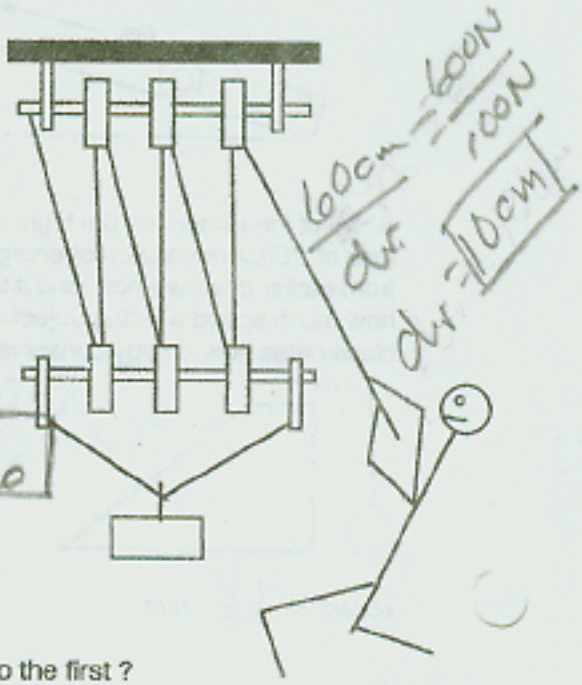
d) If the man pulls his end down 60cm, how many cm will the block rise ?

$\frac{de}{dr} = \frac{Fr}{Fe}$

$\frac{de}{dr} = \frac{60cm}{10cm} = 6$

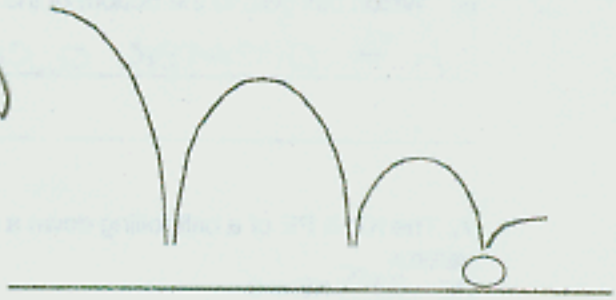
e) What is the Ideal Mechanical Advantage of the pulley system ?

f) If the man does 60J of work, what will the increase of PE of the 600N block ? 60J




11. Why don't balls bounce as high during the second bounce as they do the first ?

Energy is conserved (lost to heat - friction)



12. A hoop and a disk roll down an inclined plane. The hoop has a _____ moment of inertia so it will have _____ rotational KE and _____ translational KE at the bottom of the incline. Therefore the _____ will reach the bottom of the incline first.

What is the rotational KE of the disk a the bottom of the incline if it has a moment of inertia of 1.2 kg $m^2$ and an angular velocity of 2.5 radians/second ?

_____

If the translational KE of the disk is 4.2 J at the bottom of the incline, what is its total KE ? _____

What is the total KE of the hoop at the bottom of the incline ? _____